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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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N 684.2745

005514 MM42/0830
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NEW YORK NY 10112

EXAMINER

SCOTT JR., L

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 08/30/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks



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EXAMINER

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7

DATE MAILED:

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined. ☐ Responsive to communication filed on _____ ☐ This action is made final.
A shortened statutory period for response to this action is set to expire THREE (3) month(s), — days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of informal Patent Application, Form PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

1. ☒ Claim(s) 1-20 are pending in the application.
Of the above, claim(s) is withdrawn from consideration.
2. ☐ Claim(s) has been canceled.
3. ☐ Claim(s) is allowed.
4. ☒ Claim(s) 1-20 are rejected.
5. ☐ Claim(s) is objected to.
6. ☐ Claim(s) are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawing(s) under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawing(s) are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction(s), filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under 35 USC 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant recites in : (a) the preamble of claim 1 a gas laser device and (b) claim 13 a laser gas and a laser light source, thus it is not clear since the laser gas is excited whether the chamber forms the resonator or the resonator is located elsewhere in the device ,thus even though applicant recites in lines 5 and 6 of claims 1 and 13 that the laser light is outputted from the chamber, this can not occur until the *medium has been pumped*, (i.e. until resonance has been established in the resonant cavity), or is applicant suggesting that his device is a superradiant laser, in which the medium still has to be pumped; claims 1 and 13 are indefinite and incomplete. In lines 13 and 14 of claim 1 and in lines 15-18 of claim 13, it is *not clear how the control means controls said circulating means* ,such a recitation expresses a desired result while failing to recite the structure necessary to provide said result, indeed ,this is tantamount to reciting *a means for controlling a means*; claims 1 and 13 are indefinite and incomplete. In claims 1 and 13 the circulating means circulates the laser gas within the sealed chamber(see lines 2-6); thus it is not clear in lines 13-15 of claim 1 and in lines 15-17 of claim 13 how the gas circulating means provides *different gas circulating capacities* ,claims 1 and 13 are indefinite and incomplete. Lines 16-21 of claim 1 recite a desired result while failing to recite the structure and/or means-plus-function necessary to provide said result,claim 1 is incomplete. In lines 15 and 16 of claim 1, it is not clear what the recitation *being different* refers to, is it the control means,the circulation means, or the circulation capacities;claim 1 is

indefinite and incomplete. Further the *in-operation state* recitation in lines 16-18 of claim 1 is redundant in that this has already been recited in lines 4-12 of claim 1. It is not clear in lines 15-21 of claim 1 how the in-operation circulation capacity is different from a stand-by circulation capacity, given the structure of the claim; claim 1 is indefinite and incomplete. Further in lines 19 and 20 of claim 1, it is not clear how the stand-by state differs from the in-operation state, claim 1 is indefinite and incomplete. In line 20 of claim 1 and in lines 20 and 21 of claim 13 the recitation *can be* is indefinite and alternative in scope. Claims 5 and 6 do not properly recite a Markush group, claims 5 and 6 are indefinite. In line 2 of claims 2 and 8, it is not clear how the gas control means is *operable to stop* the gas circulation through said gas circulation means, claims 2 and 8 are indefinite and incomplete. It is not clear in lines 2 and 3 of claims 3, 9 and 16 how the *blowing machine* connectively relates to the circulating means as a whole, claims 3, 9 and 16 are indefinite. All of claims 5, 6, 11, 12, 18 and 19 recite improperly claimed Markush groups. In line 3 of claim 7 and in line 13 of claim 13, how does the exposure apparatus expose a substrate with the laser light, claim 7 is indefinite. Perhaps applicant means that the substrate is exposed to the laser light. The recitation *can be* in lines 20 and 21 of claim 13 is indefinite. In claim 14 it is not clear within the context of claim language how the control means *increases the gas circulation capacity*, claim 14 is indefinite and incomplete. Since no *manufacturing* methods steps have been recited in claim 20, it (claim 20) is incomplete. Further claim 20 is improperly dependent from an apparatus claim, thus it can not be determined what applicant is relying upon to carry the claim, -the method which does not appear in the claim or the apparatus.

The following is a quotation of 35 U.S.C. §103 which forms the basis for all obviousness rejections set forth in this Office action:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person."

Claim 1-12 are, insofar as definite, rejected under 35 U.S.C. 103 as being unpatentable over **Fujimoto et al('523)** when considered with **Das et al('134)** or **Akins et al('884)** and **Uemura('217)**.

Fujimoto et al discloses : an excimer laser with a fan for continuously circulating a laser gas between the laser electrodes. **Akins et al('884)** discloses : an excimer laser in which the gas is circulated through the discharge area and around a substantial portion of the heat exchanger and back to the fans for continuous circulation; noble gas halide lasers selected from the group consisting of: XeCl, KrCl, ArF, KrF, XeF. **Das et al('134)** discloses :

an excimer laser which has : a means for regulating the concentration of at least one of the gases within the chamber; means for recirculating the gases in the chamber; and means for filtering the gases during recirculation. The gases are recirculated by a fan driven by a pair of motors (control means) which are controlled by a microprocessor based controller and the gases are filtered during recirculation. Uemura('217) discloses : an excimer laser exposure apparatus such as a stepper. Given the teachings of the references it would be obvious to combine the recirculation features of Das et al and/or Akins et al('884) into the device of Fujimoto et al since all of the references are concerned with gas replenishment in excimer lasers. Further it would be clear to one of ordinary skill in the art desiring to provide the laser with different gas circulation capacities that such a feature would either be *inherent* in the reference combination since the circulated gas is passed through a filter which cleans the gas of particulate matter, or it would be obvious that once the fan is shut off by the microprocessor based controller that *the gas capacity of the laser would change* from that of the gas containing just the unclean particulate gas to that of the fresh gas supplied by the filter along with fresh gas injected into the system. Clearly a condition where the fan is not blowing or has been stopped (i.e. the fan motor has been shut off by the microprocessor), for one of a variety of reasons, (for example to change from a flowing gas system to a stagnant or non-flowing gas system) would be viewed as a stand-by mode since the light could still be outputted as opposed to an in-operation mode where the fan continues to blow the gas around the chamber and the gas capacity of the gas containing particulate matter is filtered and replenished. Further since Uemura('217) discloses an excimer laser exposure apparatus and gas

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replenishment, it would be obvious that one of ordinary skill would be motivated to incorporate the exposure apparatus of Uemura('217) into the device of the reference combination to expose a substrate with the laser light. Applicant's device is obvious

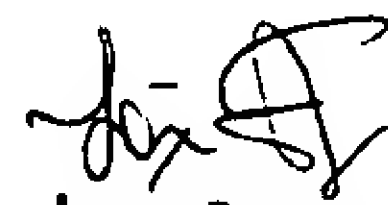
Mizoguchi et al('436) is cited for its teaching of an excimer laser with a gas replenishment and a controller for said gas replenishment.

Sandstrom('578) is cited for its teaching of gas replenishment for an excimer laser.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Léon Scott Jr. at telephone number (703)308-4884.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

August 26, 1999


Leon Scott, Jr.
Primary Examiner
Léon Scott, Jr.
Primary Examiner
Art Unit 2874